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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/758,022	01/16/2004	Shoichi Okamura	SUT-0232	6241
23353	7590	06/23/2006	EXAMINER	
RADER FISHMAN & GRAUER PLLC LION BUILDING 1233 20TH STREET N.W., SUITE 501 WASHINGTON, DC 20036			HO, ALLEN C	
			ART UNIT	PAPER NUMBER
			2882	

DATE MAILED: 06/23/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/758,022

Applicant(s)

OKAMURA ET AL.

Examiner

Allen C. Ho

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 June 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Objections

1. Claim 1 is objected to because of the following informalities:
 - (1) Line 5, "detection radiation" should be replaced by --detecting radiation--.
 - (2) Line 16, "detecting" should be replaced by --detection--.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1 and 3-5 are rejected under 35 U.S.C. 102(b) as being anticipated by Hsieh (U.S. Patent No. 5,249,123).

With regard to claim 1, Hsieh disclosed a radiographic apparatus comprising: radiation emitting means (13) for emitting radiation toward an object under examination; radiation detection means (14) for detecting radiation after the radiation is emitted toward the object under examination; signal sampling means (31) for taking radiation detection signals from the radiation detection means at fixed sampling time intervals (column 2, lines 53-56); and time lag removing means (26) for determining lag-free radiation detection signals (x_k) by subtracting a radiation detection signal ($\sum_{n=1}^N \beta_n e^{-\Delta t / \tau_n} S_{nk}$) for a lag-behind part from the respective radiation detection

signals ($y(k\Delta t)$) by a recursive computation (Eq. 5), on an assumption that, of the radiation detection signals taken by the signal sampling means at the fixed sampling time intervals, the radiation detection signal for a lag-behind part left unread from the radiation detection means within the fixed sampling time intervals, to be read at a next reading time and added to a radiation detection signal actually read at the next reading time, is due to an impulse response formed of one exponential function or a plurality of exponential functions with different attenuation time constants (column 1, lines 60 - column 2, line 2); the radiographic images being derived from the lag-free radiation detection signals obtained by the time lag removing means.

With regard to claims 3-5, these claims fail to set forth additional structural limitations. Accordingly, they are rejected with claim 1. MPEP § 2114.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hsieh (U. S. Patent No. 5,249,123) as applied to claim 1 above.

With regard to claim 2, Hsieh disclosed a radiographic apparatus as defined in claim 1, wherein the time lag removing means is arranged to perform the recursive computation for removing the lag-behind part from each of the radiation detection signals, based on the equation

$$x_k = \frac{y_k - \sum_{n=1}^N \alpha_n (1 - e^{T_n}) e^{T_n} S_{nk}}{\text{constant}}$$

However, Hsieh failed to disclose

$$x_k = y_k - \sum_{n=1}^N \alpha_n (1 - e^{T_n}) e^{T_n} S_{nk}$$

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to employ the equation with or without a scaling constant, since a person would be motivated to scale the signal according to a preferred image brightness scale.

6. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hsieh (U. S. Patent No. 5,249,123) as applied to claim 1 above, and further in view of Roos *et al.* (U. S. Patent No. 6,041,097).

With regard to claim 6, Hsieh disclosed a radiographic apparatus as defined in claim 1. However, Hsieh failed to disclose a flat panel x-ray detector.

Roos *et al.* disclosed a CT system comprising a flat panel x-ray detector. Roos *et al.* taught that a flat panel detector would provide a volumetric image data acquisition system which improves x-ray utilization resulting in faster patient scan times and reduced radiation dose (column 2, lines 53-57). In addition, a flat panel x-ray detector has improved spatial resolution due to its fine detector matrix spacings (column 2, lines 58-62).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to employ an x-ray flat panel detector as the radiation detecting means, since a person would be motivated to achieve the above mentioned advantages.

Double Patenting

7. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

8. Claims 1, 2, and 6 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1, 9, 14, 15 of U.S. Patent No. 7,006,599 B2. Although the conflicting claims are not identical, they are not patentably distinct from each other.

With regard to claims 1 and 2, claim 15 of U.S. Patent No. 7,006,599 B2 claims a radiographic apparatus comprising: radiation emitting means; radiation detection means; signal sampling means; and time lag removing means for determining lag-free radiation detection signals by subtracting a radiation detection signal for a lag-behind part from the respective radiation detection signals by a recursive computation.

With regard to claim 6, claims 9 and 14 of U.S. Patent No. 7,006,599 B2 claim a radiographic apparatus as defined in claim 1, wherein the radiation detection means is a flat

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panel x-ray detector having numerous radiation detecting elements formed of a semiconductor and arranged longitudinally and transversely on a radiation detecting surface.

9. Claims 1, 2, and 6 provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1, 2, 4, 10, and 11 of copending Application No. 10/885,634. Although the conflicting claims are not identical, they are not patentably distinct from each other.

10. Claims 1, 2, and 6 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1, 2, and 5 of copending Application No. 10/887,920. Although the conflicting claims are not identical, they are not patentably distinct from each other.

11. Claims 1, 2, and 6 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1, 5, and 6, of copending Application No. 10/901,212. Although the conflicting claims are not identical, they are not patentably distinct from each other.

12. Claims 1, 2, and 6 provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1, 3, and 8 of copending Application No. 10/958,297. Although the conflicting claims are not identical, they are not patentably distinct from each other.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Response to Arguments

13. Applicant's arguments filed 09 June 2006 with respect to the specification have been fully considered and are persuasive. The objection of the specification has been withdrawn.

14. Applicant's arguments filed 09 June 2006 with respect to claim 6 have been fully considered and are persuasive. The objection of claim 6 has been withdrawn.

15. Applicant's arguments filed 09 June 2006 have been fully considered but they are not persuasive.

The applicants argue that Hsieh failed to disclose a time lag removing means where the signal sampling time is always fixed. The examiner respectfully disagrees. Hsieh explicitly disclosed a signal sampling means for taking radiation detection signals from the radiation detection means at fixed sampling time intervals (column 2, lines 53-56).

The applicants further argue that the denominator $\sum_{n=1}^N \beta_n$ of Eq. (5) disclosed by Hsieh is less than 1.0, which is different from applicants' invention. The examiner respectfully disagrees.

It is noted that the feature upon which applicants rely (*i.e.*, $\sum_{n=1}^N \beta_n < 1.0$) is not recited in the rejected claims. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Therefore, the rejections are being maintained.

Conclusion

16. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Allen C. Ho whose telephone number is (571) 272-2491. The examiner can normally be reached on Monday - Friday from 8:00 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward J. Glick can be reached on (571) 272-2490. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Allen C. Ho, Ph.D.
Primary Examiner
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21 June 2006